

CLAIMS

1. A turbine rotor having an axis of rotation and comprising an axle element, and a plurality of individual radial body members carrying one or more impeller elements, and wherein the plurality of radial body members are secured with respect to said axle element, each radial body member having leading and trailing radial abutment surfaces relative to the direction of rotation of the rotor that contact with the respective radial abutment surfaces of adjacent radial body members, and each radial body member further comprising at least one further abutment means, and the turbine rotor further comprising locating means in one of direct and indirect engagement with the further abutment means of the radial body members, and wedging means which is tapered in the radial direction relative to the axis of rotation and which acts between said abutment means and said locating means, and further comprising means acting via said wedging means to draw the radial body members radially inwards resisted only by contact of the respective adjacent leading and trailing radial abutment surfaces of the body members to hold them together as a unit.
2. A turbine rotor as claimed in claim 1 to which the radial body member is common to a plurality of radially disposed impeller elements.
3. A turbine rotor as claimed in claim 2 in which the plurality of impeller elements are formed integrally with the associated radial body member
4. A turbine rotor as claimed in claim 2 in which the plurality of impeller elements are discrete members that are secured to the body member by positive fixing means.

5. A turbine rotor as claimed in claim 1 in which each impeller element is formed with its own radial body member.
6. A turbine rotor as claimed in claim 1 in which the body members form segments of the rotor and the leading and trailing radial abutment surfaces thereof are tapered so that they converge on and intersect at the axis of rotation.
7. A turbine rotor as claimed in claim 1 in which the further abutment means comprises axial abutments means.
8. A turbine rotor as claimed in claim 1 in which each radial body member comprises two of said further abutment means which are disposed to opposite axial ends thereof.
9. A turbine rotor as claimed in claim 8 in which the locating means comprises two locating elements that are engageable with a respective one of the two further abutment means of the radial body members.
10. A turbine rotor as claimed in claim 1 in which the wedging means comprise at least one separate member interposed between the further abutment means and the locating means.
11. A turbine rotor as claimed in claim 1 in which the wedging means is incorporated in at least one of the further abutment means of each of the radial body members and said locating means.
12. A turbine rotor as claimed in claim 1 in which said at least one locating means comprises an annular locating ring which is provided with a frusto conical abutment.
13. A turbine rotor as claimed in claim 1 in which the at least one further abutment means of each radial body means is radially tapered.

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14. A turbine rotor as claimed in claim 13 when dependent on claim 12 in which the radially tapered abutment means is in the form of a flange extending in the axial direction, and, wherein on assembly, the flanges of all the radial body elements form an annular frusto conical tapered flange that is acted on by the frusto conical abutment of the annular locating ring.
15. A turbine rotor as claimed in claim 9 in which means is provided for directly securing together the two locating elements.
16. A turbine rotor as claimed in claim 15 in which the securing means comprises an axial clamping means.
17. A turbine rotor as claimed in claim 1 in which means is provided to secure the locating means individually to a separate connecting member.
18. A turbine rotor as claimed in claim 17 in which the separate connecting member comprises the axle element.
19. A turbine rotor as claimed in claim 17 in which said means comprises a tapered locking element.
20. A turbine rotor as claimed in claim 19 in which each locating ring is provided with its own tapered locking ring comprising two relatively moveable parts which engage between the connecting member and the locating ring and in which at least one locking ring acts to generate an axial movement of the locating ring relative to the connecting member and thereby cause the radial body members and hence the impeller elements to be drawn inwardly by virtue of the co-operating tapered abutment surfaces.

21. A turbine rotor as claimed in claim 17 when dependent on claim 16 in which the respective means to locate each annular locating element are provided in addition to the aforesaid axial clamping means.
22. A turbine rotor as claimed in claim 1 in which the turbine rotor is a Pelton wheel runner and the impeller elements are buckets.